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to the comments of the secretary
of War upon Minority report of the
selection Committee on the Pacific
Railroad.

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SUPPLEMENTARY REPORT

IN REPLY TO THE

COMMENTS OF THE SECRETARY OF WAR

UPON THE

MINORITY REPORT OF THE SELECT COMMITTEE
ON THE PACIFIC RAILROAD,

BY

MR. KIDWELL, OF VIRGINIA.

WASHINGTON:
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34TH CONGRESS, }
3d Session. }

HOUSE OF REPRESENTATIVES.

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PACIFIC RAILROAD.

SUPPLEMENTARY REPORT

IN REPLY TO THE

COMMENTS OF THE SECRETARY OF WAR

UPON THE

Minority report submitted by Mr. Kidwell, of the Select Committee on the Pacific Railroad.

FEBRUARY 12, 1857.—Ordered to be printed.

In a Minority Report submitted to the House of Representatives at the first session of the present Congress, reasons were submitted to show why the estimates of the engineers employed on the reconnaissances and surveys for railroads from the river Mississippi to the Pacific ocean ought not to be considered wholly reliable.

One of those reasons having been unfavorably commented upon by the Secretary of War in his last annual report to the President, and by the President laid before the House, it is deemed proper to submit a few remarks in reply to the Secretary, and in further explication of the original action of the Secretary under the act authorizing the reconnaissances and surveys.

Captain A. A. Humphreys, topographical engineer, seems also to have felt himself called upon to publish a pamphlet, the principal object of which appears to be a disparagement of the minority report and a vicarious defence of Lieutenant Whipple. Such observations will be submitted upon this publication as are deemed likely to call the attention of Congress to important controverted points.

Among the several points proposed to be considered, in reply to the principal and auxiliary criticisms upon the minority report, are the following :

1st. That the Secretary, in deciding upon the routes to be examined by the engineers, did great injustice to the middle States, especially to the fifteen southern States—to California, and to the Nation.

2d. That, so far as can be seen from the reports thus far printed, the Secretary decided which of the routes was the *best*, and gave his reasons for the decision, before the detailed calculations of the engineers had been made—before the surveys had been sufficiently ex-

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amined to enable the engineers to detect errors even when they amounted to eighty-one millions of dollars; and that the decision, based on such hasty and incorrect calculations, was not made, as it turns out, in favor of either the shortest, the cheapest, the best settled, the most central, or the most convenient route, but, as shown by the printed reports, inferior to another route in each of those particulars.

3d. That the estimates, as was then supposed, are not only "unreliable," but must surely mislead those who rely upon them, as they did the Secretary of War; and that Captain Humphreys is *mistaken* when he assumes that the suppositions of the minority report in this regard are inconsistent with the facts.

4th. That the estimates of Captain Humphreys himself are inconsiderate, and not of a character that would justify either Congress or a railroad company in relying upon them.

Before proceeding to consider the foregoing and other topics, it is proper to give expression to the embarrassment felt in consequence of the want of a good map, exhibiting in detail the several routes which the Secretary of War, in pursuance of the authority conferred by the act of March 3, 1853, caused to be examined by the army engineers. Although nearly four years have passed, the "elaborate map" of that portion of the United States lying west of the great lakes and of the Mississippi river, which near two years ago the Secretary informed Congress was "being compiled," and was "in an advanced state," is not yet within the reach of the several members of the two houses. The Secretary has furnished Congress with a substitute, of which a note to it says: "This map is a *hurried compilation* of all the authentic surveys, and is designed to exhibit the relations of the different routes to each other." The following remarks are based upon the representations made upon that map, it being impossible to refer to the one not yet obtainable.

It is also due to all concerned that the deference felt for the high scientific attainments of the military engineers of the American army should be expressed in unreserved terms. And it is also felt to be equally due to Congress and to the undersigned to say, with equal unreserve, that it is believed to be improper to repose the same confidence in the abstract opinions and theoretical estimates of merely scientific gentlemen, who are known to be practically unacquainted with railroad building, that it would be proper to repose in the matured opinions and careful estimates of practical and experienced railroad engineers. It would not be more unreasonable to require railroad engineers to conduct an army, or superintend a siege, in perfect accordance with all the rules of the military schools, than it would be to demand of army engineers a perfect display of knowledge of the art of laying out and building railroads in the best and most economical manner, and to estimate the business they would be likely to transact when built.

Congress, on the 3d March, 1853, directed, by law, that such "explorations and surveys" should be made as might be deemed necessary to "ascertain the most practicable and economical route for a railroad from the Mississippi river to the Pacific ocean."

The execution of this order was entrusted to the Secretary of War.

Previous knowledge of the country to be explored was limited. But it was known that two parallel ranges of mountains extended from north to south, quite across the country to be passed over ; and that the most eastern range (the Rocky mountains) was very high between the 38th and 39th parallels of latitude, but fell off to much lower altitudes both north and south of those parallels. By going north as far as the 42d degree, it was *known* that the mountains could be crossed at an elevation of about 8,000 feet ; by going south to the 35th degree, it was *believed* the mountains could be crossed at a still lower elevation. The route of the first lay *north* of a line drawn through the centre of the northern States ; the route of the second lay *south* of a line drawn through the centre of the southern States. A line drawn from San Francisco due east to the Atlantic ocean, would pass near Richmond and strike the Atlantic a little north of Norfolk ; it would pass the Rocky mountains at a point nearly equidistant from the South Pass on the north, and Albuquerque on the south.

Colonel Fremont had ascertained, by a series of barometrical observations, that the Rocky mountain range *gradually rose* as he went south from the South Pass, in north latitude $42^{\circ} 17'$, until, in about latitude 39° , it attains an elevation of 11,000 feet, or more than TWO MILES high. Numerous observations, taken by Dr. Wislizenus, Captain Sitgreaves, and others, had also shown that, in latitudes 35° and 36° , in the neighborhood of Albuquerque, the height of the Rocky mountains was not only not so great as in latitude 39° , but probably not so great as at the South Pass. At El Passo, still further south, and at the North Pass, in the extreme north, they were known to be still lower.

With this knowledge before him, the Secretary of War directed the exploration of a route near the British line on the north ; one near the Mexican line on the south ; one over the highest part of the Rocky mountains near the 39th parallel ; and one from Fort Smith (on the Arkansas river) through Albuquerque, along or near the 35th parallel of latitude.

No survey was made of the South Pass, nor of a route from St. Louis to Albuquerque. A thorough exploration of the Sierra Nevada, for a reasonable distance north and south of San Francisco, to ascertain whether passable, was not made. Scarcely anything additional was ascertained in relation to the size, course, and value of the Colorado river, though it is supposed to drain a country of vast extent ; of its affluents, crossing places, &c., &c., little additional information was sought or obtained. Whether the Mohave river *sinks into the ground*, or empties into the Colorado, is unknown to the explorers, though its course, so far as it is known, is along the line of a main route of survey !

Such the routes that were ordered to be surveyed to obtain knowledge for the use of the national legislature : along the British line ; along the Mexican line ; over the highest part of the Rocky mountains ; and from an (at present) inaccessible point on the west line of Arkansas, along the 35th parallel !

To advantageously conduct the trade and travel of the population of the cities and States of the Atlantic, Gulf, and Lake frontiers to

San Francisco, *the great mart of our Pacific possessions*, who would locate a road over the top of Coo-cha-topa? or would run from the Mississippi river to the British line, ten or eleven degrees of latitude north of San Francisco, and then run back south as many more? or run from the Mississippi to a point six or seven hundred miles south of San Francisco, near the Mexican line, *instead of leaving the Mississippi river from a point reasonably Central to the Nation, and proceeding to the point sought as nearly direct as the configuration of the country would allow?*

In 1853 it was *known* that the heights and snows of the Rocky mountains could only be avoided by going south of an east and west line drawn across the geographical centre of the United States. To avoid extreme heights and obstructing snows, and yet keep the road upon a line nearly central to the States, and connecting with steamboat and railroad conveyances, was a *desideratum* so perfectly obvious that no Secretary, however inexperienced, could possibly overlook it.

St. Louis is a point as far south as the majority of the population of the United States ought to be required to go to find the eastern terminus of a government road from the Mississippi river to San Francisco, if a feasible route could be found lying far enough north to justify an eastern terminus at that city. This is a truth that all intelligent men can apprehend and must acknowledge.

When the surveys were ordered by Congress, it was firmly believed, and loudly asserted by certain representatives of the States of California and Missouri, that the best route from the Mississippi would be found beginning at St. Louis, and running *via* Albuquerque on to San Francisco—a route nearly central (though a little south) to population and to business, north and south. Yet those gentlemen, as results show, were unable to persuade the Secretary to survey a route which, if found practicable, would be the most central and convenient of any. On the contrary, he preferred to order, and did order, the money appropriated by Congress to be expended in surveying a route, the stupendous heights of which were already known, not only from the fact that on it four great rivers took their rise, and flowed in opposite directions, but also from the actual barometrical measurements of Colonel Frémont. True, the 35th parallel route was also surveyed; but it was started *from a point* which is neither accessible nor convenient to the majority of the people of the United States, and thus was rendered unattractive to them. True, it was started from a place which, in a few years, will be peculiarly convenient and accessible to the majority of the people of the southern States; but not being so to the northern part of the southern States, nor to any of the northern States, such a route (like the one along the Mexican line, or the one along the British line) *could never be desirable to the majority of the people of the United States.*

A right line drawn between New York and Albuquerque would pass through St. Louis. And yet Baltimore is nearer to St. Louis than is New York, and Charleston is nearer than Baltimore. So is Richmond, and Savannah, and Pensacola. St. Louis is, therefore, eligibly situated.

A road from St. Louis, *via* Albuquerque, to San Francisco, would

avoid, it was supposed, extreme heights, extreme heat, and the deep snows. A road from Albuquerque, *via* Fort Smith, to Memphis, and one from Albuquerque to St. Louis, *would have a common stem* a considerable distance; if one is built, both ought to be. *The line of Continental Road most convenient to the fifteen southern States, taken as a unit, begins in Charleston, and runs to San Francisco, through the towns of Memphis, Little Rock, Fort Smith, Anton Chico, and Albuquerque, and has a fork to St. Louis.* Whereas a road built from Charleston, *via* Vicksburg, Shreevesport, and El Paso, to San Francisco, whilst it might accommodate Texas, New Orleans, and the southern portions of Mississippi, Alabama, Georgia, South Carolina, and Florida, is not so convenient to the northern portions of Mississippi, Alabama, Georgia, South Carolina, or any part of North Carolina, eastern Virginia, Kentucky, or Tennessee, as is the Memphis, Fort Smith, and Albuquerque road; and the States of Delaware, Maryland, and the western part of Virginia, and all of Missouri are best accommodated by a road not south of one beginning at Norfolk, and running through Richmond, Cincinnati, St. Louis, and Albuquerque, to San Francisco.

The mass of the population, business, and wealth, and the greater part of the geographical area of the fifteen southern States, lie north of a line drawn fifty miles south of, and parallel with, the Charleston, Memphis, Fort Smith, and Albuquerque road; *that line of road is very accessible to each of the southern States* at some point or other before it reaches the east line of New Mexico. Not so with the extreme southern border road; it would be a hardship to compel even the business man of Charleston to go into the southwestern part of the Gadsden Purchase, instead of proceeding north of west *directly* to San Francisco; and if it would be a hardship to a Charleston man to take the extreme southern route, what would it not be to all the people of North Carolina, Virginia, Maryland, Delaware, Tennessee, Kentucky, Missouri, and such other portions of the country as lie along, or north of, the parallel of the 35th degree of north latitude? To go to San Francisco, they would be compelled to cross the Albuquerque route and go more than two hundred miles south, *and then return back to it*, to reach San Francisco! The extreme southern cities, even Galveston, can reach San Francisco as readily by the Albuquerque route as any other, or nearly so—in many cases *more* readily than by any other. But the entire northern and the middle portions (being largely more than one-half) of the population of the south would find their road greatly elongated, if compelled to go down the Mississippi two hundred miles to be able to *start* on the road to San Francisco. Memphis is about one hundred or one hundred and twenty miles *south* of San Francisco; it is a hardship to require people living north of Memphis to unnecessarily *go still further south* when they ought to be travelling north. St. Louis is about eighty miles north of San Francisco; St. Louis is too far north, and Memphis too far south.

The route which will best accommodate the fifteen southern States is thus seen to be the bifurcated one, starting from St. Louis and from Memphis, and uniting in the valley of the Canadian. It is the best, because it is the most convenient to them; it is also the best for the south, *because it admirably accommodates every State in the Union, and*

thus would be more deserving of, and more likely to command, success. St. Louis will be easy of access to all places in the United States lying north of the Ohio and James rivers as soon as the road from Richmond to Cincinnati is finished. *To secure the construction* of this central southern route along the 35th parallel, it was *indispensable* that it should be made accessible and convenient to the population of the States lying north of it; and this could only be done by a road from St. Louis. In failing to make this road accessible to a majority of the people of the United States, the Secretary, *if his object was to advance the interests of the South*, failed to effect his object; and, in failing, has injured the South he sought to serve. If his object was not Sectional, but was National, then his failure was still more signal; for he failed to survey a route that would furnish a connexion to the majority of the population of the United States with what he had good reason, as an intelligent man, to believe would prove to be the best and *most convenient* of all the proposed routes. Whether the road was to be for military, commercial, or social purposes, the duty was to so execute his official trust as to make it, if physically possible, beneficial to ALL the great interests of the country, whose common servant he is.

One great reason, then, why the results of the surveys are not ‘reliable’ for national or sectional legislative purposes, is, that *the routes surveyed were not judiciously selected by the Secretary.*

Another important reason is, that, when selected, the surveys were not *thorough*; they were too superficial to answer the purposes intended. This point, so seriously affecting the reliability and value of the estimates, will be returned to, and reasons given for the opinion; the more especially as Captain Humphreys wishes to impress upon Congress that the surveys were “conducted with care and *thoroughness.*”—(See his pamphlet, p. 7.)

Another reason why the information obtained by the engineers is not of a character to base legislative action upon, is found in the differing and inconsistent estimates of the engineers. In this connexion, an extract from the pamphlet of Captain Humphreys is submitted; he says:

“If grave mistakes were committed on a route [that near the 35th parallel] where more care and more labor would be likely to be bestowed upon estimates of cost than upon the estimates of cost of the less important routes upon each side of it, what reliance ought to be placed upon estimates of cost made up *for routes of minor importance?* Surely greater care, greater labor, and greater pains-taking were not likely to be bestowed upon the *lesser* objects than upon the greater.”

“But there was no occasion for supposition upon the subject, since all the facts touching the degree of care bestowed upon the route of the 35th parallel, and all other routes, had been communicated by the War Department to Congress, and made public by that body; and these facts, so far from supporting these suppositions, are inconsistent with them in every particular.”

To sustain the last point made, and at the same time furnish a complete answer to the attempt of Captain Humphreys to induce Congress to believe that reliance ought to be placed upon the estimates of the engineers, the following extract is quoted from his own official report:

“The estimate for cost of construction is, perhaps, in excess; the cost per mile, from Fulton, on Red river, to the Rio Grande, a distance of 780 miles, being at the rate of \$50,000 per mile. On the Northern route the estimated mean cost of the first 780 miles is about \$35,400 per mile, (240 miles at \$25,000 per mile—next, 712 miles, at \$40,000 per mile;) yet, from the description of these portions of the two routes, *it is evident the difference in cost per*

mile of constructing the two will not be great. This is mentioned to show what different judgments are formed in making these estimates, and what caution should be used in being guided by estimates in figures of the costs of routes that have not been subjected to the same judgment or same standard. The difference of estimated cost in this distance of 780 miles on roads that would not probably vary greatly in their actual cost of construction, is \$11,700,000; and if the same difference should exist throughout the entire distance, it would sum up to about \$35,000,000.—(See vol. 1, p. 81, quarto edition.)

Here is an ascertained conflict to the very serious amount of \$11,700,000; and, possibly, one of \$35,000,000, *according to his own account!* Does not this justify the Minority of the Committee in assuming that the estimates are “unreliable?”

Again: A closer examination shows that Captain Humphreys was, himself, a large contributor to the alleged error of Lieutenant Whipple. By referring to page 81, of vol. 1, as before quoted, the House will see that the captain *increased* the estimates of Lieutenant Whipple \$19,381,000! To do justice to Captain Humphreys, (and to throw further light upon the value of the estimates,) it is necessary to add that he also *cut down* Lieutenant Whipple’s estimates (of the cost of “equipment”) some \$12,000,000. A further examination of his report shows that Captain Humphreys expects to earn a larger income with “*one-fifth*” of the equipment, than that earned by the Baltimore and Ohio, and other eastern railroads, with a full equipment! Hence, when the estimates of Lieutenant Whipple called for an equal equipment for equal work, Captain Humphreys *cut them down four-fifths!*

These radical differences of opinion among subordinates, and between the officer in charge and the subordinates, show that the estimates are not founded upon generally acknowledged principles, but upon mere conjectures; and hence are “unreliable.” One guesses that, as the road is to earn *more* than the eastern roads, its equipments (delivered in that far-off region) should cost at least as *much* as the equipments of the roads whose business is to be exceeded. Another *guesses* that more business can be done with *one-fifth* than is done by eastern roads with *five-fifths!* The latter guess or conjecture is adopted, and is then called an “estimate,” and Congress is called upon by the friends of a Pacific railroad to expend its money upon the strength of it! Can anything be *less* “reliable” than such “estimates?”

The extreme southern route, stretching along the Mexican boundary line, is well known to have many obstacles on it of a very serious character. Such is the heat (the Secretary admits) that in the hot season the cars cannot ordinarily be run. On this point the following (taken from the New York Journal of Commerce of the 6th of June, 1856,) throws some light:

“*The atmosphere in the plains of Utah and California.*—Mr. J. Weyth, the old mountaineer, says the Monterey Sentinel, states the following fact touching the aridity of the air in these elevated regions:

“‘The dryness of our atmosphere was so great on one of the branches of Powder river, in August, 1832, that I could not discharge one barrel of my double percussion gun without causing the other to explode from the slightly increased heat. One man was wounded in this way, and guns several times exploded, and I was obliged to discontinue the practice of placing caps on the guns in the daytime until immediately wanted for use.’

“Lieutenant Whipple, of the United States boundary survey, under date of October 19, 1849, states that near the banks of the Colorado and Gila ‘the horn encasing the reading lens of my micrometer of the zenith sector snapped and flew from my fingers in three pieces, owing to the excessive dryness of the atmosphere. All the wooden boxes in which the instruments were packed are being destroyed. The nicely seasoned and well finished cases of the English instruments, made many years since, have shrunk so, from the aridity of the air, as not to admit the original contents.’”

Yet, under such a sun, upon this route, so devoid of water, soil, and timber, so trying to machinery, Captain Humphreys estimates a railroad can be built, furnished and equipped to do a business of \$17,000,000 per annum, for \$45,000 per mile! He says the earnings of the Massachusetts roads amount to \$7,713,208; that the cost of working them is \$4,541,468—leaving a net profit of \$3,211,198. “But as the *equipment* of the Pacific road for this business, yielding \$17,000,000 yearly, is *merely one-fifth* that of the Massachusetts roads, the expense of working the road *would be nearly in that proportion!*” He, however, with a pleasant display of caution, finally estimates that the cost of working the road through that country (where supplies even of water, wood, machinery, provisions, and laborers have to be carried immense distances,) will be *two-fifths* of what it costs in Massachusetts! He gravely tells Congress, through his estimates, that that road, thus destitute of all supplies of every kind, can be worked so cheaply that \$2 on it will equal \$5 in Massachusetts! And this prodigious saving is effected in this ingenious way, to wit: he proposes to use but *one-fifth*, or, at most, *two-fifths* of the value of the equipments to do a business of \$17,000,000, which the less thoughtful, more wasteful, and less experienced Massachusetts railroad men use to do a business of only \$7,000,000! and while they expend \$4,500,000 to earn their smaller sum, he says “the yearly expense of working the Pacific railroad would be about \$4,000,000, *leaving thirteen millions of dollars for the net earnings!*”—(See vol. 1, p. 101.) If the engineers could do with but *one-tenth* of the equipments used in Massachusetts, it seems but reasonable to suppose that the “net earnings” would be still more satisfactory!

Passing from the consideration of “estimates,” into which the imagination seems to have so largely entered, we are prepared to wonder less how the Secretary came to recommend the longer and the worse as the shorter and the best route from the Mississippi river to the Pacific ocean. His recommendations are very positive.

In volume 1, page 29, the Secretary says: “The route of the 32d parallel is, of those surveyed, ‘the most practicable and economical route for a railroad from the Mississippi river to the Pacific ocean.’ This is the shortest route; and not only is its estimated cost less *by a third* than that of any other of the lines, but the character of the work required is such that it could be executed in a *vastly* shorter period. Not only is this the shortest and least costly route to the Pacific, but it is the shortest and cheapest route to San Francisco.”

The honorable Secretary is mistaken. He did himself the injustice to make up his report before the calculations of his engineers had been completed. It is surprising that he did not, by the exercise of his usual reflection, consider the difficulty of *gaining* the long distance covered by three degrees of latitude. A moment’s reflection ought to have convinced him that the road from Memphis to San Francisco is reasonably direct; that the road from Vicksburg, via El Paso, necessarily makes about 200 miles of northing in going northwest from the Gadsden Purchase to be able to effect a junction with the Memphis road in the pass leading to the Tulare valley. It was evident to the most superficial gazer at a map that it was *likely* to turn out, as it has, that the road from Memphis, *via* Fort Smith and Albuquerque, to

San Francisco, is shorter than the favorite border route of the Secretary to the same point.

A glance at the map also indicated a far better route along the 35th than along the 32d parallel ; the Secretary, not insensible to striking geographical features, speaks, in graphic language, of "*the extension, west and east, of the interlocking tributaries of the Mississippi, the Rio Grande and the Colorado of the west.*" This is true, and being true, the route ought to have been considered the shortest, best watered, best wooded, levellest, cheapest, and most central, (compared with the border route,) *until the surveys could demonstrably prove the contrary.*

The Secretary and Captain Humphreys, by attacking and attempting to weaken the force of the Minority Report, have made it *necessary* to expose *their* obvious and fundamental errors with as much perspicuity as possible. Instead of meeting the facts and reasoning of the minority report, the Secretary and his assistant appear to have desired to *break their force* by selecting a *single fact*, and crying out against it. The object of the minority report was to obtain and establish truth ; and the object of this supplementary report is to fortify the leading opinion expressed in that report, viz: that the railroad routes were economically impracticable, and the surveys and estimates of the engineers superficial and unreliable. That opinion is based on truth, whether the minority of the committee has knowledge enough of the subject, and a sufficient command of language, to make it evident or not. And no controversial art will be able to succeed, by making an outcry about some *one* of many engineering mistakes, in attracting attention from the superficialness of the surveys, and the consequent unreliability of the estimates. To make the true issue clear : the route most fair to all sections, and which seemed most likely of any to be found practicable, was not selected to be surveyed : those routes which were selected were *superficially* surveyed : the estimates of amounts of grades, curves, and distances, as well as of the cost of a road, *on either route*, are not reliable : the estimates of the amount of either freight or travel, over either route, are not even *probable*, as the minority report demonstrated beyond the power of cavil.

These errors, going both to the selection and to the surveys of the routes, and to the estimates based on the knowledge gained, have been examined solely that the House may be able to safely judge how far our *knowledge* of what would be the cost of building a railroad really extends, and not from a desire to censure. In fact, it was personally painful to be obliged to censure in a case where it would have been a pleasure to approve ; but justice will not *permit* an approval of superficial surveys, unreliable estimates, or of recommendations of routes, when those recommendations were made before the relative merits of the routes were actually known *even to the limited extent shown by the surveys.* The routes were badly selected by the Secretary, but his recommendation of a route before the relative merits of each were known is still more unfortunate ; neither act of the Secretary can be conscientiously approved by the undersigned : They are thus broadly stated in pure self-defence.

One great cause of these unfortunate errors of the Secretary is to be found in the unreliable estimates of Captain Humphreys ; another in

the extremely superficial manner in which the surveys were executed by most or all of the engineers.

Take the case of Colonel Frémont, the pioneer in this business of army exploration of routes. He passed through the country, making general observations upon its appearance, and ascertaining the heights and the latitude and longitude of leading passes in the mountains; but he did not ascertain the *grades* and *curves* of a route to and from important passes. So with Emory, Marcy, Sitgreaves, Johnston, Stansbury, Abert, and others. Their opinions of the value of a route for a railroad were, from this cause, of little worth—not to be compared with those of men like Carson, Bill Williams, and Lareux; for, if in anything, they ought to excel those mountain guides in conjecturing *the grades* of roads, but did not even in that. Colonel Frémont is a notable instance of this. Although, when a youth, he had some experience in railroad building, yet he believed and said that there was scarcely “a perceptible rise” from river to river through the Pass El Sangre de Christo. The instruments subsequently proved two things—that the grade exceeded 340 feet to the mile, and that Lareux was right when saying, the year before the survey was made, that a *better* pass could be found in that neighborhood than the one which seemed to Frémont to be without a “perceptible rise.”

The bulk of the explorations was, therefore, so vague, loose, and indefinite as to be of little practical worth. The explorations had, to be sure, ascertained *the heights* of certain mountain passes in different parts of the country; and in so far as that fact and their general observations went to show the mildness or the rigors of winter, could be used. For instance, they ascertained, from actual observation, that in certain passes, in certain latitudes, the snow lies unmelted until “the latter end of June.”

To this amount and kind of knowledge Congress proposed to add *something more definite and satisfactory*. Has the Secretary caused that intention to be fulfilled?

This is best answered by examining the information itself. Take, for example, the Cajon Pass, which was examined by two of the principal engineers, who were sent into the field with instruments in their hands. Captain Humphreys says, (see vol. 1 p. 88 :) “Lieutenant Williamson is of opinion that these high grades cannot be reduced. Lieutenant Whipple thinks that they can.”

Upon this it is deemed proper to remark that Congress had not, nor has any conceivable use for idle opinions about the grades through important passes, but may be supposed to desire *an actual ascertainment* of the best attainable grades at a reasonable cost. Actual results have a positive, opinions only a negative value.

A close examination of the report of Lieutenant Whipple inspires the examiner with a high opinion of his industry and science, and occasions a regret that the explorer did not give a wider scope to his topographical observations, and actually examine what bid fair to improve. On the 33d page of his report he thus briefly describes the Memphis and San Francisco route :

“For a great portion of the route from the Mississippi we followed natural channels, where streams flow nearly east and west. The river Arkansas and the Canadian lead us to the base of the Rocky mountains. Thence crossing table-lands to Rio Pecos, we ascend to the head

of the Galisteo, which is followed to Rio del Norte. Descending Rio del Norte to Albuquerque, we cross to the Puerco and join Rio San José, which leads to Ojo del Oso, near Campbell's Pass, the summit of Sierra Madre. We now reach Rio Puerco of the west, which furnishes a valley to Rio Colorado Chiquito. The latter carries us to Chevelon's fork, where we turn westward, crossing the final spur of Mogoyon mountain and the headwaters of Rio San Francisco, to a branch of Rio Santa Maria, (Bill Williams' fork,) which leads to the Colorado. Thence we would propose to ascend to the mouth of the Mojave river, and follow the bed of that stream to the base of Sierra Nevada. The route should traverse, thence, the northern slope of the San Bernardino spur, which is said to furnish numerous rivulets, bearing clear waters into the sandy plains below. Approaches from the east to the various passes in this range—'Walker's,' 'Cañada de las Uvas,' and 'Tejon'—are known to be favorable. To examine these passes minutely, in order to determine that which shall be available for a railway to San Francisco, was a duty intrusted to another, whose labors, it is hoped, will be crowned with success.'

It is now proposed to call attention to the manner in which the work of exploring and surveying this route, as thus described by Lieutenant Whipple, was done, that the House may see how little is really known about it by the engineers who surveyed it, and of how little value all estimates based on such explorations and surveys must necessarily be.

Before doing so, it is honestly due to Lieutenant Whipple to say, in the most explicit manner, that his examinations appear to have been conducted with as much industry, science, and zeal as those of either of his compeers; that it is believed his first estimates will, though far too low, prove more nearly correct, should government ever commit the error of building a railroad, than the estimates of either of the gentlemen having in charge the survey of a route; and that his error consists, not in making his first estimates too high, but in accepting the data of his official superiors, and then so reducing his estimates as to make them correspond with their necessarily vague ideas of what a road running through sandy deserts and uninhabited mountains would cost. To reduce his estimates to their ideas of what they ought to be, seems to have required a subtraction of some \$81,000,000—less the addition made to Lieutenant Whipple's estimates by Captain Humphreys. So much seems to be justly due to this engineer. His fault will also be found to be, from the extracts about to be submitted, a want of *thoroughness* in his topographical examinations—a fault common to all military engineers hitherto employed by government on such explorations, not one, so far, having made to Congress a complete railroad "survey" of a well defined route. And without such detailed and accurate survey, "estimates of cost" are but rude conjectures, upon which sensible men will not invest money.

On page 26 of his report, Lieutenant Whipple says:

"Although our route equalled all we had reason to anticipate, it yet *seems probable* that the main eastern branch *would lead through a more favorable country*, by the Black mountain to 'Val de Chino.' Thence a reconnaissance eastwardly *might discover* a passage through the Black Forest across the headwaters of Rio San Francisco, and unite with our trail upon Cañon Diablo, near the Colorado Chiquito."

The truth of these suppositions was not ascertained. He passed out to the Colorado river; and, on same page, says:

"Upon the opposite side seemed a succession of mountains, which, receding from the river towards the northwest, terminated about ten miles above. *There a wide plain seemed to extend indefinitely westward*, and possibly might lead in about one hundred miles to San Gorgonio Pass, the fine puerto discovered by Lieutenant Williamson, to the valley of Los Angeles."

Neither was this route, thus opening before them, explored. On

the contrary, he ascended the river several miles, until he was "met by Mojaves, who, acting as guides around the next spur that formed a cañon, conducted the surveying party through a pass, *invisible from the river*, where not a hill intervened."

After describing the difficulties in the way between the Colorado and the Mohave rivers, Lieutenant Whipple says, on page 30:

"Whether a channel exists by which the Mojave river finds its way to the Colorado, is a problem not yet solved. We regretted exceedingly that time for a closer examination was not at our disposal. Our trusty Indian guide, however, assured us that the dry channel of that stream passed uninterruptedly north of our route to the Colorado, *and that wagons could pass through it without encountering a hill*. Such a route as he describes, with water found by digging, is undoubtedly the most favorable for a railway that exists across the desert west from the Colorado river."

Does a good route exist between the Colorado and the passes in the Sierra Nevada? Did the Indian tell the truth? Or does the Mohave sink in the ground? The surveyors cannot tell.

Mr. Campbell, a civil engineer, and an aid of Lieutenant Whipple, in a few sensible remarks appended to the report, suggests several points where the route might *probably* be improved—the following instance is taken from page 38:

"Between camps Nos 120 and 121, Big Sandy unites with Bill Williams' fork, which comes from the northeast. From a careful examination of my topographical notes, triangulations, deductions, &c., I feel confident in stating my opinion as to the source of this fork—that it is in a pass which we saw some few miles to the south of us, between the Black mountain and Mount Hope. By a slight detour in the Val de Chino, this pass can be attained, and the valley of Bill Williams occupied for the route, *thereby saving about fifty miles of distance* and the probability of an uninterrupted descent of about twenty-eight feet per mile."

On page 39, Mr. Campbell says: "Thence turning southeasterly to a junction with the Sierra Nevada, at the San Bernardino mountain, the exploration continued west and through a pass in the highest point of this river, there being much lower ground *both to the north and south of this point*, as shown by the map."

It is due to Lieutenant Whipple to give the reason assigned by him for his hurrying forward, leaving important openings unexplored—it is found on page 27:

"But our time was precious; it was doubtful whether, with the utmost diligence, we could reach the settlements *before our supply of subsistence should be exhausted*. Therefore, abandoning our wagons, except a light vehicle to which was attached the viameter, and in which the lighter instruments were carried, we packed upon mules our collections, provisions, and cached such things as we could spare."

This was in the valley of the Colorado river, 550 or 600 miles from San Francisco, and fully accounts for his neglect to find the outlet of the Mohave river, and thus obtain an easy grade from the Colorado river to the passes of the Sierra Nevada, if one existed. *He lacked the means*.

Here it may be proper to remark that Congress lacks information in relation to the country lying between the passes in the Sierra Nevada and the Colorado river, of the country lying between the Colorado and Zuñi, and of the valley of the Colorado river itself—that important information could have been obtained with the money unwisely expended on the impracticable Coo-cha-topa route.

Such is the character of the information obtained for the use of

Congress under the instructions of the Secretary of War. It appears to be fully equal to that obtained in relation to other routes. The Secretary says, (vol. i, page 22, quarto edition :) "The exploration of the route by Lieutenant Whipple, and his report thereon, are entitled to the highest commendation for the completion of the work in all its parts, the full and exact observations which he made for the determination of longitudes and latitudes, and the wide range of scientific research which he instituted into all the collateral branches connected with the question which his exploration was designed to solve."

This is as high praise as that bestowed upon the surveys of any other route, and probably is, in all respects, as well deserved. Still, it is not believed by the undersigned to be that kind of information which could be used by an experienced railroad engineer when making "reliable" estimates of cost. Mr. Campbell says, page 40 :

"To make a minute estimate of the probable cost of a railway from the Mississippi to the Pacific, *cannot come within the province of this exploration* ; it being well known that, *for such a purpose*, the most accurate and detailed measurements are required. The barometric observations, however, have developed a most interesting profile, and are sufficiently reliable to determine the great question of *practicability* beyond a doubt."

No one can doubt that it is *possible* to build a railroad on either route yet explored ; it is "practicable" to build one even over Cocha-topa ; but it *is* doubted, by many considerate persons, whether it is "practicable" to build a road upon any route yet explored *at a cost that would justify the expenditure* ; it is unquestionably doubtful whether a road would yield enough revenue to run it and keep it in repair.

But, say some, suppose the road *never should* earn enough to be able to repay a shilling of either principal or interest of the cost of building it ; suppose even an annual expenditure necessary to keep the railroad in repair, the same is true of fortifications, ships of war, and all military defences possessed by a nation ; and therefore, if a railroad is a suitable, efficient, and (in the event of war) a *necessary* means of defence, the government ought to build it. Let this assertion of the friends of a government road be considered a moment, especially as the building of a railroad is looked upon with interest by the Secretary of War from what he calls considerations "*of a strictly military character.*" Considered even from *this* point of view, the "estimates" of the engineers, and the reasonings and recommendations based on them by the Secretary, are "unreliable"—obviously and strikingly unreliable.

The Secretary, in his annual report of 1855, says (see p. 15) a few ships would suffice to blockade the Pacific ports of the United States, and that *this* military consideration, amongst others, causes him to examine "with interest *all projects* promising the accomplishment of a railroad communication between," &c., &c. Having these and other "considerations of a strictly military character" in view, as well as the feasibility and economy of the route, the Secretary, in the most pointed and explicit terms, recommends, as preferable to all others on this continent within our jurisdiction, a line of railroad communication *running many hundreds of miles directly along the borders of a neighboring nation* ; that nation and powerful allies would, to adopt the language of the Secretary, have the "*choice of time and*

place" to attack and seize that line of communication. Suppose it broken off in the deserts, or near the head of the Gulf of California, where the army of the invader could easily and cheaply derive supplies from a co-operative fleet, does the Secretary propose to despatch to those distant deserts and maintain from the Mississippi valley an army to compete with a hostile army which draws copious supplies from a fleet lying perhaps within a few rods of his camp? How long would it take a hostile and well-appointed army to construct fortifications at the Colorado, which, aided by "comparatively few ships" lying in the river to protect the works with their guns, could not be captured except by a regular siege, as was Sebastopol? Or is it proposed by the Secretary to construct military works along the whole line of his favorite border communication to secure it against interruption in time of war? If so, before entering upon the building of his border road, estimates of cost of fortifications to defend it should be submitted to Congress, that we may know, in advance, what this "defensive military contrivance" is to cost the United States; else it might happen to us as to the "foolish man" who began to build and was not able to finish.

A few words more upon this point. Mexico is a feeble nation, and is not able to prevent (even if it did not combine against us) a maritime nation at war with the United States from sending a fleet to the head of the Gulf of California to seize the communication between the Atlantic and Pacific States. An international right to do so would undoubtedly be set up by the belligerent. That communication broken off, and of what benefit would be the vast expenditure on that border railroad, made under the delusive idea that it would be beneficial in time of war? To be useful in time of war, it would have to be made invulnerable to attack. To make it thus invulnerable in time of war, what would be the cost? Upon this important point "of a strictly military character" not a solitary estimate has been submitted! And yet the tremendous war vessels prepared by the British and French with which to attack Cronstadt, had the war been continued another year, or any other similar naval force, could, it is believed, sail directly up to the very line of the road, six hundred miles from San Francisco and east of the great Colorado desert!

If this railroad is, *bona fide*, to be built as a great means of securing a stout "military defence of California" in time of war, as pretended by some of its advocates; and if the Secretary of War really favors it upon THAT ground, why was not an estimate of the cost of erecting such military works as are indispensably necessary to defend the railroad sent in? Otherwise, Congress might as well build forts without bomb-proof magazines, or without guns or mortars; it is as necessary to *secure* as it is to *construct* a military road. The estimates are, therefore, deficient, and necessarily "unreliable."

But California *needs* no such costly methods of military defence. Few countries on the globe, of like extent and importance, are so easily made defensible. Few countries, of even far larger population, can compare with California in the extent of its military power. Its population is eminently warlike, and trained to an expert use of arms. True, an arsenal of construction, situated beyond the reach of a hostile fleet,

and yet easily accessible to our troops, (like that at Watervliet,) is a *necessity* to California, and ought, long ere this, to have been supplied. So, also, arsenals of depot and repair. And so, also, complete military defences to command the few inlets, harbors, and anchorages on the coast. This done, *and thoroughly done*, and the people of California, like the people upon the Atlantic coast, may be confidently relied on to furnish patriotic men (and enough provisions, clothing, &c., for the troops raised) to repel all enemies. Their ability and their patriotism may be relied on with unhesitating confidence; and woe to the enemy that shall invade them, *presuming* upon their lack of either!

It is to be hoped the military authorities will elaborate a perfect system of defence, and submit carefully prepared estimates therefor, and that Congress will wisely and liberally appropriate money for its construction; but will leave railroads to be constructed, as they have heretofore been constructed, by the intelligently directed enterprise of individuals who are engaged in the business of conveying freights and passengers. This policy has been safely adhered to in the past; why *distrust* it in the future? The freighting and passenger business has, so far, been well conducted by individuals, both on the land and on the sea. Why, then, shall government seek to enter into the business and engage in a contest with competitors so experienced and so skillful? Government has ardently desired roads along the frontiers, and from the frontiers to the interior; and to obtain them, relied on the enterprise of its citizens. That reliance has proved well founded, even to an extent far beyond the first hopes of the most sanguine. What justification, then, has Congress, amid the blaze of this brilliant success, for abandoning this reliance upon the people, and for rushing into a business for which governments have no aptitude? Will not patience, and a "masterly inactivity," and leaving the ground unoccupied by government, and open to the enterprise of individuals, *soonest* achieve the construction of all feasible and profitable roads? And the roads required by the wants of trade are generally, if not always, coincident with those required by the engineer for military defence. In twenty-five years, more than 25,000 miles of railroad have been built; in ten years more, the roads from the Mississippi river will be carried up to the extreme western borders of the western settlements, and California will have roads extending eastward at once numerous and complete. *When this shall have been done*, the two systems will be united, *if business will justify it*; and, if done, government will do as it ever has done—it will pay, as other customers do, for all freight and all passengers it sends over railroads. This policy has been deemed wise, just, and statesmanlike—who can prove it unwise, or that it is unjust? or demonstrate that it is no longer suitable to our condition?

Believing that the policy of leaving the construction of Roads and Canals to the States and to the people ought not to be abandoned, but conscientiously adhered to, the minority report was made in its defence. An adherence to the POLICY of OUR FATHERS is recommended by the very deficiencies exhibited by our eminent military men, whom we have unwisely endeavored to suddenly *convert into railroad engi-*

neers. Of our public men, from the President to the humblest revenue collector, how few are competent to decide *where* and *how* railroads shall be built! And of the cost and management of such structures, what do our army, navy, or department officers really and practically *know*? If an exhibition of the imperfectness of the knowledge of the best informed of the government office-holders in relation to railroads shall tend to preserve this government from improper enterprises, every end had in view by the undersigned will have been attained. If a railroad OUGHT to be built, *it ought to be located on that route which is so situated as to reasonably well accommodate all, or nearly all, of the several States.* If a railroad OUGHT to be built, it should only be done after detailed surveys have been made by men whose regular *business* it is to make them. A route that would conveniently accommodate the greater number of States both north and south not having been *thoroughly surveyed*, it is held that Congress has not information enough laid before it to justify a location, even if it desired to make one; after making a deduction of \$81,000,000 from one set of estimates laid before us to guide our judgments, it is indicated that *a further one may yet be expected!*

Hoping that this further examination of the subject, in reply to the Secretary of War and Captain Humphreys, may shed some further light upon the nature and value of the estimates, the whole matter is submitted to the judgment of the House.

Z. KIDWELL.

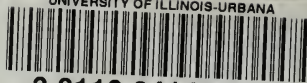
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